

DIET HELPS
for
DOCTORS





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DIET HELPS *for* DOCTORS

*Calories, Height and Weight Tables; Formulas for Infant Feeding;
How to Combat Constipation; The Successful Treatment
of Colitis; A Sure Means of Changing the Intestinal
Flora; Diet Lists; Diabetic Ration Table, etc.*

DIET SERVICE DEPARTMENT
OF
THE BATTLE CREEK FOOD COMPANY
BATTLE CREEK, MICH.

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THE BATTLE CREEK FOOD CO.

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Foreword

This is not a treatise on diet. It is little more than a brief compilation from dependable sources of tables and other compact data about diet which any progressive physician will be glad to have at hand for ready reference, and which are elsewhere accessible only in scientific textbooks, encyclopedias and technical treatises.

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Diet Helps for Doctors

HOW MUCH FOOD IS REQUIRED BY A MAN? A WOMAN? A CHILD?

The question of quantity is of first importance, for food is fuel. Food is measured quantitatively by means of the calorie.

WHAT IS A CALORIE?

A calorie is the amount of heat required to raise one kilogram of water one degree centigrade in temperature or four pounds one degree.

A food *portion* is 100 calories, that is, an amount of food which would, if burned, produce 100 calories of heat.

A *serving* is usually not more than one portion, but often less. The number of calories in an ordinary serving of food is shown in a table of food values in this booklet. In the case of mixed dishes it is of course necessary to determine the calorie content by calculation from the formula or recipe.

HOW MUCH SHOULD AN AVERAGE PERSON EAT?

	Calories
Average active man	2,500
Sedentary man	2,300
Hard working man.....	4,000
Average woman, housekeeper.....	2,200
Sedentary woman, teacher, typist.....	2,000
Nursing or expectant mother.....	2,500
Child two years old.....	1,000
Child of ten years.....	1,500
Boys and girls, 14-16.....	2,000

SIMPLE FORMULA FOR CALCULATING THE DAILY RATION FROM THE BODY WEIGHT

If the person's weight is approximately normal for his height (See Table), his daily ration may be determined by the following simple formula, which will give $\frac{1}{3}$ gram ($1\frac{1}{3}$ calories) of protein per pound of body weight, an amount now generally conceded to be ample to meet physiologic requirements:

Protein, multiply body weight by $1\frac{1}{3}$

Fat, multiply protein calories by 4

Carbohydrates, multiply fat calories by 2

Example: Body weight 150 pounds

Protein ($150 \times 1\frac{1}{3}$) 200 calories

Fat (200×4) 800 calories

Carbohydrates (800×2) 1,600 calories

Total 2,600 calories

For persons of average weight, the food requirement may be determined by multiplying the body weight in pounds by the number of calories which careful laboratory research has shown to be requisite, as follows for different ages:

Age	Calories per pound	Age	Calories per pound
Birth to 1 month.....	30	6 years.....	34-35
2 months	40	7 years.....	32-34
3 months	41	8-9 years.....	30-35
4-6 months	43	10-12 years.....	28-32
7-9 months	40	12-13 years.....	25-30
1-2 years.....	40	14-17 years.....	20-25
3-4 years.....	37-40	Adults	16-20
5 years.....	35-37		

HEIGHT AND WEIGHT TABLES

Table of Heights and Weights of Men as Prepared by the
Association of Life Insurance Medical Directors*

Ages		15-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
5 ft.	0 in.	120	125	128	131	133	134	134	134	131	130
	1 in.	122	126	129	131	134	136	136	136	134	132
	2 in.	124	128	131	133	136	138	138	138	137	135
	3 in.	127	131	134	136	139	141	141	141	140	140
	4 in.	131	135	138	140	143	144	145	145	144	143
	5 in.	134	138	141	143	146	147	149	149	148	147
	6 in.	138	142	145	147	150	151	153	153	153	151
	7 in.	142	147	150	152	155	156	158	158	158	156
	8 in.	146	151	154	157	160	161	163	163	163	162
	9 in.	150	155	159	162	165	166	167	168	168	168
	10 in.	154	159	164	167	170	171	172	173	174	174
6 ft.	11 in.	159	164	169	173	175	177	177	178	180	180
	0 in.	165	170	175	179	180	183	182	183	185	185
	1 in.	170	177	181	185	186	189	188	189	189	189
	2 in.	176	184	188	192	194	196	194	194	192	192
	3 in.	181	190	195	200	203	204	201	198	196	196

Table of Heights and Weights of Women as Prepared by the
Mutual Life Insurance Company of New York*

Ages		15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
4 ft.	11 in.	111	113	115	117	119	122	125	128	128	126
5 ft.	0 in.	113	114	117	119	122	125	128	130	131	129
	1 in.	115	116	118	121	124	128	131	133	134	132
	2 in.	117	118	120	123	127	132	134	137	137	136
	3 in.	120	122	124	127	131	135	138	141	141	140
	4 in.	123	125	127	130	134	138	142	145	145	144
	5 in.	125	128	131	135	139	143	147	149	149	148
	6 in.	128	132	135	139	143	146	151	153	153	152
	7 in.	132	135	139	143	147	150	154	157	156	155
	8 in.	136	140	143	147	151	155	158	161	161	160
	9 in.	140	144	147	151	155	159	163	166	166	165
	10 in.	144	147	151	155	159	163	167	170	170	169

*The figures given include the ordinary house clothing. For net weight subtract 4 per cent.

FOOD AND DEVELOPMENT TABLE

Infants and Young Children

Age	Height Inches	Weight Pounds	Calories
0	20.6	7.5	225
2 months	22.5	10.4	375
4 "	24.5	13.2	500
6 "	26.5	16.0	700
8 "	27.5	17.7	750
10 "	28.5	19.3	775
1 year	29.5	21.0	850
1½ years	32.0	24.5	1000
2 "	34.0	27.0	1075
2½ "	36.0	30.0	1200
3 "	37.5	32.5	1300
3½ "	39.0	34.7	1350
4 "	40.5	37.0	1400
5 "	41.7	41.0	1475
6 "	43.0	45.0	1525
7 "	46.0	49.0	1600

DAILY RATION

(For Average Active Adults)

Energy Output and Food Requirements of Persons Engaged in Different Occupations

The energy expenditure required by different occupations varies very greatly. Careful observations made by various investigators have shown the actual energy requirement of different occupations for a person weighing 154 pounds to be about as follows:

Occupation	Calories of metabolism per day
Office man	2,400
Bookbinder	2,440
Shoemaker	2,510
Carpenter	3,100
Metal worker.....	2,900
Painter	2,950
Stonemason	4,200
Man sawing wood.....	4,800

INFANT FEEDING

Feeding Program for Infants

Age	Weight	Quantity in 24 Hrs. Feeding	No. of Feedings	Amt. of Feedings	Calories Daily
Birth	7 pounds	20 ounces	8	2½ ounces	350
1 mo.	9 pounds	24 ounces	6	4 ounces	400
2 mo.	10½ pounds	28 ounces	5	5½ ounces	475
3 mo.	12 pounds	30 ounces	5	6 ounces	510
4 mo.	13 pounds	32 ounces	5	6½ ounces	545
5 mo.	14 pounds	34 ounces	5	7 ounces	575
6 mo.	15 pounds	36 ounces	5	7¼ ounces	612
7 mo.	16 pounds	32 ounces	5	6½ ounces	640
8 mo.	17 pounds	33 ounces	5	7½ ounces	660
9 mo.	18 pounds	34 ounces	5	8 ounces	680
10 mo.	19 pounds	28 ounces	5	5⅔ ounces	700
11 mo.	20 pounds	29 ounces	5	5¾ ounces	725
12 mo.	21 pounds	30 ounces	5	6 ounces	750

Feeding Schedule For Infants

3rd day to 3rd month	3rd month to 8th month	8th month to 12th month
6 A.M.	6 A.M.	6 A.M.
9 A.M.	9:30 A.M.	10 A.M.
12 noon	1 P.M.	2 P.M.
3 P.M.	4:30 P.M.	6 P.M.
6 P.M.	8 P.M.	10 P.M.
9 P.M.	12 midnight	
12 midnight		

INFANT FORMULAS

Milk with Meltose Sugar

First month: One-third milk, two-thirds water, with two ounces Meltose Sugar to the quart. One ounce gives thirteen calories.

Second to sixth months: Half water, half milk, with two ounces of Meltose Sugar to the quart. One ounce gives seventeen calories.

Seventh to ninth months: Two-thirds milk, one-third water, two ounces of Meltose Sugar to the quart. One ounce gives twenty-one calories.

Tenth to twelfth months: Use full milk, adding two ounces of Meltose Sugar to the quart. One ounce gives twenty-eight calories.

Milk, Meltose Sugar, 20% Gluten Meal

1 quart milk
1 ounce Meltose Sugar

2 ounces 20% Gluten
1 teaspoonful Savita

One ounce gives twenty-seven calories.

An excellent formula to promote rapid growth.

Humanized Milk

1 ounce Malted Nuts
7 ounces water

8 ounces certified milk
 $\frac{1}{2}$ ounce Lacto-Dextrin
or Meltose Sugar

One ounce gives 21.6 calories.

This formula gives a mixture closely resembling human milk. Does not form large curds and is slightly laxative.

Malted Nuts

1 ounce Malted Nuts

$\frac{1}{2}$ ounce Meltose Sugar

7 ounces water

One ounce gives 23 calories.

For infants sensitized to cow's milk.

Almond Cream

1 ounce Almond Cream

6 ounces water

One ounce gives 22.5 calories.

With each feeding every infant should be given a dessert spoonful of orange or tomato juice and an equal amount of Savita broth (1 level teaspoonful of Savita or 1 rounded teaspoonful of Sal-Savita to 8 ounces of water).

The Iron Content of Foods

The accompanying figures indicate the number of thousandths grains of iron in one ounce of food. The body requires daily at least one-fourth (250 thousandths) of a grain. The white figures on black ground indicate the average for each group. (See last section.)

LEGUMES

	Calories	Iron
Lentils	100	38
Garbanzo	100	31

31

	Calories	Iron
Beans	100	31
Peas	101	25

WHOLE GRAIN CEREALS

23

Oatmeal	113	17
Corn (dried)	109	13
Cracked wheat bread	174	11
Rice (brown)	100	9

GREENS

14

Chard	11	11
Turnip tops	17	10
Cabbage	9	5
Cauliflower sprouts	6	3
Lettuce	6	3

NUTS AND DRIED FRUITS

12

Pecans	208	11
Zante currants	90	11
Raisins	90	9
Walnuts	200	9
Almonds	155	9
Chestnuts	114	5

MEATS AND EGGS

8

Pork chop	96	11
Meatloaf	27	10
Trout	27	10
Herring	40	3
Halibut	29	3
Codfish	20	2

DENATURED CEREALS

4

Corn flakes	100	4
Polished rice	100	4
Kellogg's cereal	100	4
Cornstarch	102	6

FRESH VEGETABLES

37

Kohl-rabi	9	3
Asparagus	18	3
Onions	15	3
Cucumber	11	2
Turnips	35	2
Sweet potato	8	2
Leggiant	8	2
Turnip	6	2
Celery	2	2

FRESH FRUITS

2

Plums	24	2
Pears	18	1
Apples	15	1
Grapefruit	15	1
Cantaloup	11	1
Pineapples	18	1
Peaches	12	1
Oranges	12	1

DAIRY PRODUCTS

2

Butter	218	1
Cottage cheese	55	1
Buttermilk	10	1

Battle Creek Health Foods Rich in Iron

50

	Calories	Iron
80% Gluten Bia	100	150
Soy Bis.	100	70
40% Gluten Bia.	100	60

	Calories	Iron
40% Gluten meal ...	100	50
Egg bran	50	25
Profose	70	25

	Calories	Iron
Malt Sugar	104	22
Malted Nuts	150	19
Malt Honey	86	17

Savita 500

Food-Ferrin 750

Sal-Savita 735

THE BATTLE CREEK FOOD COMPANY
BATTLE CREEK, MICH., U.S.A.

To Balance the Diet for Iron

More than half the people of the United States are suffering from anemia. A sufficient cause for this condition is found in the fact that the average American diet is deficient in iron. The body loses daily of its precious store of 43 grains of iron, 250 thousandths of a grain ($\frac{1}{4}$ gr.). At least this amount must be supplied by the daily food. In cases of anemia, the daily intake of iron should be very greatly increased to insure a rapid gain.

By the use of the table "The Iron Content of Foods" (see other side of sheet) the daily bill of fare may easily be balanced so as to insure any desired amount of iron.

Proceed as follows:

1. Determine the amount of food, that is, the number of calories required. To do this, multiply the normal weight by 16. If a person's proper normal weight (that is, the weight for one of his height) is 150, his day's ration would be 2400 calories ($150 \times 16 = 2400$). (For normal weights, see table.) A person who is underweight should take more than the standard number of calories, and one who is overweight less.
2. Select from the table foods sufficient for three satisfactory meals, breakfast, dinner and supper, setting them down in a column and opposite, in separate columns, place the number of calories and the amount of iron contained in each portion selected, as in the following example:

	Ounces	Calories	Iron
Graham bread	5	370	55
Oatmeal	1 (dry)	113	17
Milk	24	480	24
Strawberries	4	44	12
Apples	5	90	5
Dates	3	300	48
Lentils	1	100	38
Potatoes	4	96	24
String beans	4	44	20
Spinach	4	64	56
Tomatoes	4	24	8
Cucumbers	2	10	4
Lettuce	2	12	6
Butter	3	654	3
		2401	320

In making up the list of foods from which the day's bills of fare, breakfast, dinner and supper are to be prepared, as many as possible are chosen from the food groups which are richest in iron. The foods in each group are arranged in order, according to their iron content.

Where care is taken to select the foods which contain the most iron, there will be no difficulty in arranging bills of fare which adequately meet the normal needs of the body.

In cases of anemia, in which it is desirable to very greatly increase the normal daily requirement, any required amount of iron may be easily made available by including in the bill of fare selections from the list of Battle Creek health foods rich in iron, and especially by the free use of SAVITA, SAL-SAVITA and FOOD-FERRIN. SAVITA and SAL-SAVITA are not only rich in iron but also extraordinarily rich in vitamin B, and hence may with great profit be added to the regular bill of fare of each member of the family, and especially growing children. FOOD-FERRIN renders extraordinary service in cases of anemia.

A little study of the table will readily show how greatly lacking in iron is the ordinary bill of fare, to say nothing of its other grave deficiencies. This is well illustrated in the following day's bill of fare, also selected from the table.

A Day's Ration Deficient in Iron

	Ounces	Calories	Iron
White bread	5	75	5
Rice	1	100	4
Milk	24	480	24
Canaloup	8	88	8
Apples	5	90	5
Grapefruit	8	120	8
Trout	4	108	12
Potatoes	4	96	24
Tomato	4	24	8
Cauliflower	4	36	12
Eggplant	2	16	4
Green corn	3 (2)	87	9
Eggs		126	39
Cucumber	2	10	4
Lettuce	2	12	6
Cane sugar	2	200	0
Cream	2	110	2
Butter	3	654	3
		2432	177

Although the above day's bill of fare, or ration, supplies an ample amount of energy, the calorie content being adequate, the iron content is only two-thirds the amount required to make good the daily losses of an adult; yet many thousands of persons are subsisting upon a diet containing a still smaller amount of food iron. For example, a growing child fed upon bread and milk receives scarcely more than one-third the amount of iron which he requires, as both milk and white bread are very deficient in iron.

Savita, Sal-Savita and Food-Iron are precious resources for making good the iron deficiency of foods, and thus building up and maintaining a high quality of blood, rich in the hemoglobin that is necessary for good health and stamina, and high resistance to disease.

BLOOD BUILDING FOODS

The average person is anemic. Most children are anemic. This is the natural result of lack of sunshine and the general use of denatured foods poor in iron. The natural foods richest in iron are spinach and other greens, with gluten bread and other gluten preparations. The popular idea that meat is the richest source of food iron is an error, as will be seen by reference to the accompanying tables. There are more than twenty common foods which contain as much or more iron than lean beef, while the fat of meats contains no iron at all.

Foods Rich in Food Iron

	Thousandths of one grain of iron per oz.		Thousandths of one grain of iron per oz.
Savita	1.185	Beans, soy	.025
Gluten, pure.....	.149	Peas, dry.....	.025
Gluten, 40 per cent.....	.060	Protose	.025
Romaine	.052	Egg (one)	.024
Egg yolk.....	.038	Egg yolk (one).....	.023
Lentils, dried.....	.038	Wheat, entire.....	.022
Wheat bran	.034	Mustard greens.....	.021
Molasses	.032	Malted nuts.....	.019
Beans, lima, dried.....	.031	Hazelnuts	.018
Dock greens.....	.028	Almonds	.017

It is not necessary that the diet should be strictly confined to foods rich in iron, but these foods should constitute the staples of the dietary, so to make sure of an abundant supply of vitamins, iron, lime and other food salts. When the hemoglobin is low, the iron and lime content of the food should be doubled until the deficiency is made good. By the free use of Savita and Food-iron may be increased to any desired extent.

Food-Ferrin. Recent progress in physiologic chemistry and nutrition research has made possible the preparation of an iron-rich food which presents food-iron in a form ready for assimilation by providing not only the ferruginous element but hematoporphyrin and other necessary constituents of the hemoglobin molecule. Animal experiments in the nutrition laboratory and extensive clinical use have demonstrated the efficiency of Food-Ferrin as a blood-building food.

Foods Moderately Rich in Food Iron

	Thousandths of one grain of iron per oz.		Thousandths of one grain of iron per oz.
Beef, lean.....	.017	Dandelion greens.....	.012
Nuttolene	.017	Maple syrup	.012
Oatmeal	.017	Pecans	.011
Flour, graham.....	.016	Endive	.011
Spinach	.016	Graham bread.....	.011
Brose (Oatmeal, cornmeal, bran)	.014	Zante currants.....	.011
Boston brown bread.....	.013	Whole wheat flour.....	.011
Corn, whole.....	.013	Chard	.010
Corn, sweet, dried.....	.013	Beef, medium fat.....	.010
Dates	.013	Flour, entire rye.....	.010
Eggs	.013	Turnip tops	.010
Figs, dried.....	.013	Raisins	.009
Meat, tenderloin.....	.013	Walnuts	.009
Olives	.013	Brown rice.....	.009
Prunes	.013	Malt sugar.....	.007
		Molasses	.007

Persons, especially children, suffering from anemia should use little or no cane sugar. Dates, figs, Meltose Honey and Meltose Sugar should be used in place of confectionery.

Sal-Savita. Since the war, the Germans have developed a remarkable yeast product which is characterized by several unique properties.

1. It is richest in vitamin B of any known edible product. This gives it unusual therapeutic value as a nerve restorative, a growth stimulant (hormone) for young children, a means of aiding metabolism in cases of hypothyroidism, and of energizing the stomach and intestine in cases of slow digestion and constipation.

2. Savita has been shown by Prof. Boldyreff of the Battle Creek Sanitarium Pavlov Laboratory to be a remarkably powerful stimulant of the gastric secretion, causing the stomach to pour out a large quantity of gastric juice, rich in pepsin and highly active. Recent reports from the Pavlov Laboratory of Leningrad confirm the observation.

This extract of yeast (Savita) has been shown to be richer in vitamin B than other extracts and it differs from other extracts as well as ordinary yeast in being palatable. In *Sal-Savita* the extract is presented in a highly concentrated powdered form adapted to table use. It at once replaces pepper, mustard, and other condiments and has the advantage that it is a wholesome food, an aid to digestion and assimilation, and a real vital tonic, instead of an irritant and a detriment.

Foods Poor in Iron

Apples	1.3	Grapefruit	1.3
Apricots	1.3	Grapes	1.3
Bananas	2.6	Lettuce	3.1
Beets	2.6	Milk	1.1
Blackberries	2.6	Milk (human)	3.0
Bread, white	3.9	Onions	2.6
Butter	.9	Oranges	.9
Buttermilk	1.1	Parsnips	2.6
Cantaloup	1.3	Peaches	1.3
Celery	2.2	Plum	2.2
Cherries	1.8	Potatoes	5.7
Cornmeal	3.9	Potatoes (sweet)	2.2
Cream	1.0	Rice (polished)	3.9
Cucumbers	.9	Strawberries	3.5
Currants	2.2	Tomatoes	1.8
Egg white	.5	Turnips	2.2
Fish (Haddock)	2.9	Watermelon	1.3

BONE BUILDING FOODS

Foods Rich in Food Lime

	Grains of lime per oz.		Grains of lime per oz.
Cheese	5.70	Savita	1.23
Yogurt cheese	4.28	Milk, camel's	0.88
Cottage cheese	4.18	Purslane	0.88
Red root	3.24	Egg yolk	0.84
Mustard greens	3.01	Boston brown bread	0.79
Linseed meal	2.53	Milk, goat's	0.78
Turnip tops	2.13	Sour milk	0.75
Soy beans	2.00	Cauliflower	0.75
Lamb's quarters	1.90	Milk, skimmed	0.75
Condensed milk	1.84	Olives, ripe	0.75
Hazelnuts	1.76	Bran, wheat	0.74
Cottonseed meal	1.62	Milk, whole	0.74
Almonds	1.46	Egg, one	0.71
Molasses	1.30	Lentils, dry	0.66
Milk, sheep's	1.27	Maple syrup	0.66
Mountain spinach	1.27	Cabbage greens	0.65
Watercress	1.15	Buttermilk	0.64
Pure gluten	1.03	Dandelion greens	0.64
Dock greens	1.03	Endive	0.64
Figs, dry	0.99	New Zealand spinach	0.48
Beans	0.98	Wheat germ	0.44
Chard	0.92	Spinach	0.41

The prosperity of dentists in all civilized countries is one evidence of the deficiency of lime in the average diet. Sherman of Columbia University estimates that half the population are suffering from lime starvation. This is doubtless the result of the excessive use of food deficient or wholly lacking in lime, such

as cane sugar, glucose and other sweets, fine flour bread, rice, meats of all sorts, fish and potatoes.

Rickets, a disease which does more or less injury to fully three-fourths of all children in a large section of the United States, requires careful attention to the lime content of the food. Nursing and expectant mothers and growing children need an abundant supply of food lime which can only be secured by a careful selection of the foodstuffs which enter into the daily bills of fare.

The following table will be found helpful:

Foods Poor in Lime

	Grains of lime per oz.		Grains of lime per oz.
Apples	.04	Egg white.....	.09
Asparagus	.15	Fish (Haddock).....	.13
Bananas	.06	Grapefruit	.13
Barley	.12	Grapes	.11
Beef (tenderloin).....	.06	Hominy	.07
Beets	.18	Honey	.02
Blueberries	.10	Macaroni	.14
Bread, graham	.18	Millet	.09
Bread, whole wheat	.13	Mushrooms	.10
Bread, white	.09	Peaches	.10
Butter	.09	Pineapple	.11
Buckwheat flour.....	.06	Potatoes	.09
Cantaloup	.10	Potatoes (sweet)	.11
Cherries	.12	Pumpkin	.14
Chicken	.07	Rice (polished).....	.06
Cornmeal	.11	Rice (brown).....	.07
Cucumbers	.10	Tomato	.08
Eggplant	.07	Cane sugar and corn sirup.....	.00

FOODS USEFUL IN COMBATING CONSTIPATION

The following foods are especially rich in cellulose. Their relative values being indicated by the order in which they are named:

Wheat bran	Red raspberries	Spinach
Huckleberries	Celery	Currants
Oatmeal	Turnip	Cauliflower
Green peas	Pumpkin	Figs
String beans	Peas	Tomatoes
Cabbage	Beets	Lentils
Parsnips	Asparagus	Barley
Beans	Blackberries	Lettuce
Brussels sprouts	Cranberries	Onions
Kohl-rabi	Carrots	Gooseberries

HOW TO COMBAT CONSTIPATION

The dietetic treatment of constipation is now universally recognized as the only rational method of dealing with this disorder, almost universal among civilized people. Laxative drugs of all sorts, including mineral waters, afford only temporary relief and almost certainly at the expense of making matters worse, causing colitis (von Noorden) and increasing stasis. It is to be remembered that essentially the same measures are needed for relief of the chronic diarrhea of advanced colitis as for constipation, the real cause of both conditions being stasis.

In the dietetic treatment of constipation the chief care must be to provide an ample amount of bulk in the form of roughage. Foods differ greatly in the amount of residue which they leave to be discharged by the colon (See Table). Fruits and leafy vegetables, such as cabbage, lettuce and spinach contain the indigestible material and so are the best laxative foods. Bran and Agar are the best accessory laxative foods; of the two, bran (or better Fig Bran) is the most efficient. Bran acts by titillation, not by irritation. The notion that bran irritates, is a scarecrow invented by the bakers and the millers to make a demand for patent white flour, denatured food which kills rats and guinea pigs with polyneuritis and paralysis and is doubtless one great cause of the almost universal constipation as well as general lime starvation and decay of the teeth, and of many nervous breakdowns.

The coarsest bran is the best. Fig Bran is palatable and efficient. Those who are afraid of bran may use agar, but it is less efficient and costs ten times as much as bran.

In the use of roughage two points are important.

1. The quantity of roughage must be large. A crippled colon often needs four times as much roughage as is required by a normal colon. In some cases a very considerable quantity is needed to get the colon started. The amount must be sufficient to fill and distend the intestine to rouse it to action. The amount of roughage should be increased until the desired results are obtained. It will do no harm. Later, the amount may be reduced.

2. Another point of very great importance is the necessity for roughage at every meal, with no exceptions. If the roughage

be omitted for a single meal the food residues will form an obstructing mass which will interrupt the intestinal rhythm. So the rule must be *bran at every meal*, half a cup full at least or twice as much if needed.

Fruit, apples, or oranges at bedtime and an hour or two before meals helps greatly by causing colon movements, "gastrocolic reflex" (Hurst).

The Normal Intestinal Rhythm

Three daily evacuations is Nature's plan. An intake is followed by an output; that is, an evacuation normally occurs soon after each meal. This is universal with infants, savages, the big apes and most other animals. One-a-day constipation (Fisk) is a common ailment.

The Digestive Time Table

Four hours from the time the breakfast is eaten the unused residue has reached the ileocecal valve. The reflex peristalsis set up by taking dinner pushes the residues through the valve and by the middle of the afternoon, it reaches the transverse colon. The gastrocolic or eating reflex caused by eating supper, gives the residue a vigorous push forward which should bring it to the lower colon ready for evacuation before retiring instead of being left to ferment and decay in the colon for two days or more, thus, uselessly burdening the body with noxious products, and causing colitis, hemorrhoids and many local and general inconveniences.

Savages, healthy children and athletes move their bowels three times a day or oftener. The large apes evacuate four to six times daily. One bowel movement daily is chronic constipation and involves retention of putrefying wastes fifty or sixty hours or more (Hurst) and the accumulation in the colon of the residues of half a dozen meals or even ten to twelve, instead of two or three, the normal order.

Many persons are able to establish the three-a-day elimination rhythm by simply giving the bowels a chance to move by visiting the toilet regularly soon after each meal and on going to bed and on rising. Not infrequently, a fourth evacuation is advantageously secured.

The omission of a meal or a great reduction in the food intake will interrupt the rhythm. Something should be eaten at the regular meal hour if nothing more than fruit, lettuce, celery or other green stuff with bran or other roughage.

Lubrication Needed

Not only bulk but also lubrication is required for prompt disposal of the alimentary wastes and residues. Normally the limpid mucus secreted by the intestinal mucous membrane and especially the appendix, supplies this element. It is often deficient, however, or so changed, as in colitis, as to lose its value as a lubricator. Mineral oil, while not a perfect substitute, is a precious resource. Its great defect is due to the fact that oil and water will not mix.

A remedy for this defect is found in the mineral oils which are solid at ordinary temperatures and melt at the body temperature. Such preparations occur in tablet form. A half-ounce tablet at each meal is more efficient than an ounce or two of ordinary oil or agar emulsions. The tablet should be divided into half a dozen pieces which are chewed up with the food, one at a time at intervals during the meal and so thoroughly mixed with the food. When thus taken, the heavy mineral oil clings to the residues and lubricates them efficiently. The proof is found in the toilet bowl. *No oil appears but the stool floats instead of sinking.*

TWO NEW LAXATIVE FOODS (ACCESSORY)

Paramels

Mineral oil tablets which are solid at room temperature but liquefy at the temperature of the body. They are easy to take, are more than twice as efficient as mineral oil and do not soil the clothing.

Psylla

Linseed, an old-fashioned household remedy for constipation, is not without merit. Its hard kernels supply bulk and its mucilage lubrication; but the amount for efficient action is inconveniently large. The plantain family of plants produces a similar mucilage in much greater abundance. *Plantago psyllium* (Psylla) from Asia Minor has recently become available and has proven a most valuable aid in dealing with cases of chronic constipation, in many cases acting with surprising efficiency. Its action is physiologic, like that of a food. It has no medicinal or drug action, and so may be used indefinitely.

FOODS FOR BRIGHT'S DISEASE AND HIGH BLOOD PRESSURE

The importance of lightening so far as possible the functional burden of the kidneys in cases of chronic nephritis and cardiovascular-renal disease, is universally recognized. In no way can this be done more effectually than by so regulating the dietary as to reduce so far as possible, putrefactive changes in the colon. This requires the elimination of meats and in extreme cases, also eggs, and sometimes even milk.

Sansum, Blatherwick and others have shown the great advantages of a basic diet in these cases. This requires the total exclusion of meat and eggs from the bill of fare and great restriction in the use of cereals. An effort has been made to provide biscuits and other breadstuffs prepared without the use of cereal meals or their use only in very small amounts and with a considerable degree of success.

Basic Biscuit. These biscuits are prepared without the use of cereal flour or meal and are sufficiently crisp and tasty to take the place of ordinary breadstuffs. The legumes from which they are prepared are highly basic and provide a protein of exceptionally superior quality.

Basic Biscuit Meals. Several *basic* biscuit meals which may be used in various ways as substitutes for cereal meals, are prepared from the soy bean, the garbanzo, and the chestnut.

Vegetable Proteins. The observations of Tissier, Torrey and others have clearly shown that vegetable proteins tend much less than do animal proteins to develop putrefactive changes in the colon. Torrey and Mitchell even found it possible to change the flora of meat-eating dogs and rats by feeding gluten. On this account, Protose, Nuttolene, Malted Nuts, Bromose and other

PROTOSE

The vegetable meat. It looks like meat, tastes like meat, has the aroma, the composition and even the fiber of meat.

nut preparations as well as nuts in their natural state, may render valuable service in catering to this important class of invalids.

Potatoes and basic biscuit should be used in place of cereals, breads and breakfast foods, because of the rich supply of organic bases which they afford and which neutralize the acids arising from tissue wastes always present in excessive quantity in persons subject to arteriosclerosis or high blood pressure. Fruits should be freely used and greens in sufficient amount to furnish an adequate supply of lime and iron.

Vitamēt. There has recently been perfected a basic meat, using the excellent protein of the soy bean as the basis. The new meat has been received with great favor and has proved to be a highly satisfactory alternate for animal meats. Its highly basic and non-putrefactive properties make this a most wholesome and acceptable source of protein for persons suffering from high blood pressure, Bright's disease, arteriosclerosis, cardio-vascular, renal disease, hepatic sclerosis, and allied affections.

Laxa, Fig Bran, Psylla and Paramels should be used freely enough to secure three bowel movements daily and the enema should be used at night, in addition, two or three times a week, when a considerable amount of residue is found to be still present after the last bowel movement.

CONVENIENT AND EFFICIENT LAXATIVE FOODS

Bran Biscuit is a crisp, toothsome wafer, delicious for lunches and sandwiches.

Whole Cooked Wheat is a capital laxative breakfast food: Combined with Fig Bran it is most efficient.

Laxa. A convenient form of roughage, especially useful for travelers. A crisp biscuit consisting wholly of coarse bran and agar. Sweet and toothsome. One biscuit sufficient for a meal. By many preferred to any other form of roughage.

Fig and Prune Marmalades. Mildly laxative. Prepared with Meltose Sugar. Are as wholesome as delicious. Far superior in flavor to ordinary marmalades. May be eaten freely without harm by children and invalids as they contain no cane sugar.

BALANCING THE DIET FOR ACIDS AND BASES (ALKALIES)

We have long known of the importance of balancing the diet for proteins, fats and carbohydrates so that the amount of each of these elements needed to insure good nutrition may be supplied. Much has also been learned in recent years of the importance of balancing the diet for the several vitamins, A, B, C and D and food salts and roughage.

And now laboratory researches have revealed the necessity for another sort of balancing, so-called chemical balance or acid-base balance. In chemical literature alkalies are called bases. In food substances there are two kinds of acids, those which give to foods an acid flavor, such as citric, malic and tartaric acids, and others which are combined with the foodstuffs in such a way that they are not recognizable by the sense of taste, such as phosphoric, sulphuric and hydrochloric acids. In balancing the food for acids and bases the acids of the first sort, citric, malic and tartaric, are not considered for the reason that these are completely oxidized or burned in the body and disappear very soon after they are eaten. Only the acids of the second class, so-called mineral acids which are not burned in the body, are considered in the classification of foods and the balancing of the diet for acids and bases.

The burning of food in the body like the burning of fuel in a furnace produces acids. Enormous quantities of acids are being constantly produced in the tissues. A man running at top speed may produce nearly half a pint of lactic acid in one minute. These acid products act as fatigue poisons and must be removed as rapidly as formed. To make this possible it is necessary that the blood should be alkaline so that the acids formed in the tissues may be neutralized and carried away as quickly as possible.

The excess of alkali over acids in the blood is known as the alkali reserve. The larger this reserve the more efficiently the tissues are kept free from the poisonous acids, the accumulation of which causes fatigue, lethargy, shortness of breath, loss of appetite, inefficiency, drowsiness and even coma and death. The acids which the body cannot burn are removed by the kidneys. The condition of the blood, or the alkali reserve, can be ascertained by examination of the urine when an excess of acid is shown by an increased acidity of the urine. The acids of the foods are more or less completely neutralized by potash, soda, lime and other alkalies.

In some foods acids are in excess; in other foods alkalies are in excess. Whether a food is acid or alkaline is determined by burning the food and analyzing the ash. In this way foods have been divided into two classes, acid foods and basic, or alkaline foods. The use of acid foods tends to render the blood and tissue fluids and the urine acid, while basic, or alkaline foods, produce the opposite effect.

To keep the body in a state of health with good resistance to disease and in a state of fitness for high efficiency, it is necessary that the alkali reserve should be well maintained. It is evident, then, that in balancing the bill of fare preference should be given to basic, or alkaline foods, such as fruits and vegetables, while such highly acid foods as meats should be discarded. Eggs should be used sparingly, if at all, and cereals should be used in moderation and should not be the staple articles of food.

A strongly basic diet is vitally necessary for persons suffering from high blood pressure, Bright's disease or premature old age, and is best for everybody.

ACID FOODS

Excess of Acid in One Ounce and in 100 Calorie Portions of Common Foodstuffs

100		100	
Cals.(a)	Ozs.(b)	Cals.(a)	Ozs.(b)
Barley, pearled.....	2.9 2.9	Haddock	12.0 2.4
Beefsteak, porter- house	4.0 3.0	Halibut steak	7.8 2.7
Beefsteak, round, lean	6.8 3.0	Ham, lean.....	5.5 3.7
Beef, round, free from fat	10.0 4.1	Herring, smoked.....	6.3 2.7
Beef, dried	8.3 4.1	Lamb	3.3 2.7
Beef juice.....	9.8 0.7	Lentils	1.5 1.5
Beef, kidney	7.4 2.4	Oatmeal	3.0 3.3
Beef, liver	7.9 2.9	Oysters	30.0 4.3
Bread, white	2.7 2.0	Peanuts	0.7 0.1
Bread, whole wheat..	3.0 2.1	Pork	4.0 2.8
Buckwheat flour.....	2.0 2.0	Pork, sausage	1.4 1.8
Cheese, cheddar.....	1.2 1.5	Pork, tenderloin	4.9 2.7
Chicken	10.0 3.0	Rice	2.7 2.7
Codfish, salted.....	12.0 3.5	Salmon	5.4 3.2
Corn, green.....	1.8 0.5	Sausage, bologna.....	4.0 2.6
Cornmeal	1.5 1.5	Sardines	4.2 3.2
Crackers, soda	2.0 2.5	Shredded wheat.....	3.3 3.3
Eggs, whole	7.5 3.1	Trout	5.4 2.6
Egg white	9.5 1.4	Turkey	3.6 3.0
Egg yolk	7.0 7.0	Veal	6.7 3.0
Flour, entire wheat....	3.3 3.3	Walnuts, California ..	1.1 2.2
Flour, wheat, patent	2.7 2.7	Wheat, cracked	
Fish, black.....	10.8 2.7	(Branola)	3.3 3.3
		Whitefish	7.7 3.3

a. Excess of acids in 100 calories.

b. Excess of acids in one ounce.

BASIC OR ALKALINE FOODS

Excess of Alkali in One Ounce and in 100 Calorie Portions
of Common Foodstuffs

100			100		
Cals.(a)		Ozs.(b)	Cals.(a)		Ozs.(b)
Almonds	1.8	3.3	Milk, condensed,		
Apples, fresh.....	6.0	1.0	unsweetened	2.7	2.3
Apricots, fresh.....	11.0	1.8	Milk, skimmed	5.0	0.5
Asparagus	3.6	0.2	Milk, whole	2.6	0.5
Bananas	5.6	1.5	Molasses	20.8	1.7
Beans, dried	5.0	5.0	Mushrooms	9.0	1.1
Beans, lima, canned..	12.0	2.7	Muskmelons	18.8	2.1
Beans, lima, dried....	12.0	12.0	Olives	18.9	16.0
Beans, lima, fresh....	11.6	4.0	Onions	3.1	0.4
Beans, string, canned	13.0	0.8	Oranges	10.9	1.6
Beans, string, fresh..	12.9	1.5	Orange juice.....	14.3	1.7
Beans, soy	12.0	12.0	Parsnips	18.1	3.3
Beets	23.6	0.3	Peaches, canned....	10.0	1.3
Buttermilk	6.1	0.6	Peaches, fresh.....	12.2	1.4
Cabbage	18.0	1.6	Pears, canned	6.37	2.3
Carrots	23.9	3.0	Pears, fresh.....	5.6	1.0
Cauliflower	17.5	1.5	Peas, canned	1.5	0.2
Celery	42.1	2.2	Peas, dried	1.4	1.4
Chard	41.1	4.5	Peas, green	1.3	0.4
Cherries, fresh.....	7.8	1.7	Pineapple	15.7	1.9
Chestnuts, dried.....	3.2	3.5	Plums*	7.3	1.8
Chestnuts, fresh.....	3.1	2.0	Potatoes	8.6	2.1
Coconuts	1.2	0.2	Potato chips.....	3.9	6.5
Cranberries*	3.7	0.5	Potatoes, sweet	5.4	1.8
Cream	0.3	0.2	Prunes, dried*	8.0	6.6
Cucumbers	45.5	2.2	Pumpkins	5.7	0.4
Currants, Zante.....	1.8	1.6	Radishes	9.8	0.8
Dates	3.2	3.2	Raisins	6.9	6.9
Figs, dried.....	32.2	29.4	Raspberry juice....	13.0	1.4
Grapes	2.8	0.8	Rhubarb*	37.4	2.5
Grape juice	4.0	1.1	Rutabagas	29.8	3.5
Garbanzos	8.0	8.0	Spinach	113.0	7.6
Lemon	12.3	1.5	Squash	6.1	0.8
Lemon juice	10.7	1.2	Tomatoes, fresh....	24.5	1.6
Lettuce	38.6	2.1	Turnips	6.8	0.7
Milk, condensed,			Watermelon	8.9	0.3
sweetened	1.4	1.2			

a. Excess of alkali or base in 100 calories.

b. Excess of alkali or base in one ounce.

*These foods contain unoxidizable acids and cannot be included in an alkaline or basic diet.

FOODS FOR PERSONS SENSITIZED TO ANIMAL PROTEINS

Numerous clinicians have in recent years called attention to the fact that many persons are sensitized to animal proteins, particularly fish, shellfish, eggs, milk and sometimes beef, mutton, and all other proteins of animal origin. This is found to be the underlying cause in many cases of chronic asthma, eczema and other skin disorders, headache, so-called "biliousness," chronic toxemia or autointoxication, colitis, and possibly rheumatism and neuritis. In such cases, the complete exclusion from the diet of all animal proteins is quickly followed by improvement and often all symptoms disappear with almost incredible celerity.

The successful exclusion of animal proteins (meat, eggs and milk), in these cases requires a comprehensive knowledge of the qualities of vegetable proteins among the many hundreds of which there are only a few qualified fully to take the place of meat, eggs and milk in human nutrition. The proteins of nuts, of those remarkable legumes, the soy bean and the peanut, and of a few oily seeds are the only vegetable proteins which are capable of meeting all requirements for tissue building. By suitable processes and combinations, these few adequate proteins have been made to meet the requirements of this class of cases in a highly satisfactory manner. The following preparations have been extensively used for many years and have yielded eminently satisfactory results in many hundreds of cases.

Malted Nuts. A preparation which resembles malted milk in appearance, is superior in flavor and nutritive value. An excellent substitute for cow's milk. Has proved a life-saving boon to many infants strongly sensitized to cow's milk.

Nut Cream. A fine concentrated emulsion of nuts, which with the addition of water becomes a true vegetable analogue of cow's milk. It closely resembles milk in appearance and chemical composition. The flavor, though different from that of milk, lacks nothing in attractive and satisfying qualities, and is readily accepted as a complete dietary alternate for cow's and mother's milk when used as directed.

Protose. Resembles potted meat in appearance, flavor and composition. Prepared from nuts and cereal proteins. Lacks nothing supplied by animal proteins and is of course wholly free from the waste products which detract from the wholesomeness

of meats of every sort. May be prepared and served in all the various ways employed for meats. In wide use for more than thirty years and with a steadily increasing demand.

Nuttolene, Vitamēt and other preparations which resemble meat in composition and more or less in flavor and appearance serve to give variety and completeness to a bill of fare from which animal meats, milk and eggs are excluded.

Bromose. A nut malt preparation in the form of small cubes. Supplies readily assimilable vegetable proteins in a most attractive and readily assimilable form. Bromose proved its efficiency as a substantial nutrient as part of the food outfit of the Nikkelsen Arctic Expedition, when it was found, as we are informed by Stephanssen, who visited the party in the field, not only satisfactory, but a favorite food. A really delicious and wholesome confection.

Aminized Glutens play a useful part in meeting this dietary need. The lacking element in most vegetable proteins is certain amino acids, especially tryptophan. Aminized glutens are complemented by the addition of proteins rich in this element and so rendered capable of meeting all the protein requirements of the tissues.

Vitamēt. A meat-like preparation, the base of which is the protein of the soy bean purged of the crude soy bean flavor. A really delicate and highly palatable preparation.

FEVER DIET

Unfortunately most of our works on dietetics still reiterate the age-old list of gruels, broths, gelatine jellies, noggs, teas, panadas and numerous other preparations which at the best provide little if anything that the patient needs and often do him more harm than good. Physiologists (Claude Bernard, Leibig) pointed out long ago the fact that beef tea and animal broths contain practically no nourishment, and Gautier showed that these animal extracts consist almost wholly of toxic substances.

The sick man needs iron for maintaining and rebuilding his blood, vitamins for keeping up his resistance, and especially carbohydrates to make good the losses due to excessive heat production and to supply glycogen to aid his liver to destroying the poisons with which his tissues are flooded. Starvation once sys-

tematically practiced in fever cases, is now known to be perilous. If food is not taken in ample quantities, the tissues are attacked, the heart, the muscles, every bodily structure. The up-to-date physician feeds his fever patient. He needs little fat, and little protein, but much carbohydrate, and foods rich in vitamins.

The following list differs greatly from the ordinary fever diet list in use in hospitals. The suggestions made have been tested by long experience:

Fever Diet List

Fruits: Purées and juices of all sorts, especially orange juice, fig and prune marmalades (meltose).

Cereals: Gruel and porridge of all cereals, cereal flakes, granola, graham toast, all dextrinized cereals, granose biscuit, rice biscuit, shredded wheat.

Vegetables: Purées of all vegetables, potato soup, vegetable soup, cream of corn soup, purées of spinach and other greens, vegetable broths.

Miscellaneous: Buttermilk, whey, malt sugar, malt honey, malted nuts, malted milk, savora broth, gluten gruel (40%), cream gluten gruel, lactose, Lacto-Dextrin.

Accessories: Bran, (except in typhoid), agar, Laxa, paraffin (Paramels, paralax with Agar, petrolatum, etc.), Psylla, Sal-Savita.

REDUCING DIET

A horizontal cut in the food intake is sure to lead to disaster. The reducing patient needs as much protein, food salts and vitamins as though he were not reducing. He needs to curtail the intake of sugar, starch and fat, but nothing else. Hence he should make his bill of fare consist chiefly of fresh fruits, fresh and green vegetables and bran.

Here is a diet list that has been used successfully for years, and in the treatment of thousands of obese patients at the Battle Creek Sanitarium.

Reducing Diet List

Fruits: All fresh, juicy fruits, especially acid and sub-acid fruits, including tomatoes both cooked and raw. Avoid figs, dates, raisins and prunes. Also avoid nuts.

Cereals: Bran mush (bran three parts by measure, rolled oats one part. Cook six minutes). Bran bread toasted, one slice

at each meal, or rye bread toasted. Gluten bread (40 per cent), gluten gems, and gluten biscuit instead of ordinary bread. Avoid breakfast foods, flakes and dextrinized cereals.

Vegetables: Most vegetables, especially the artichoke, the Jerusalem artichoke, greens of all sorts, turnips, cabbage, celery, lettuce, cucumber, radish, salsify, Brussels sprouts, and avoid the potato, sweet potato and the dasheen.

Miscellaneous: Whey, cottage cheese, skimmed milk, buttermilk (yogurt, acidophilus), butter (one-half ounce daily), cereal coffee.

Accessories: Laxa, agar, paralax, paramels and other paraffin preparations.

FATTENING DIET

The chief difficulty in securing a gain in weight is to induce the patient to eat and digest sufficient food to make the intake exceed the output. Care must be taken to select foods which are easily digested, which leave the stomach quickly, and which are inviting and appetizing. The appetite must be stimulated by wholesome relishes and if necessary by the use of insulin in suitable cases.

No excess of protein is required, and it is not well to take large quantities of fat. Excess of protein and fat make the patient toxic, slow his digestion and lessen appetite. The carbohydrates may be increased to any desired extent without injury. Cane sugar, glucose, and similar sweets must be avoided. Meltose Sugar, honey, and sweet fruits should be freely used. Meltose Honey and Meltose Sugar may be taken between meals in one or two ounce doses, when a rapid gain is desired. Lacto-Dextrin in liberal doses (6 to 10 ounces daily) will both change the flora and cause a rapid increase in weight, if taken in addition to the regular meals.

Fattening Diet List

Fruits: All fruits, but especially dates, figs, avocados, ripe olives.

Nuts: All nuts, especially almonds, walnuts, pecans and peanuts, peanut butter, almond cream, malted nuts.

Milk: Certified milk, cream, butter, buttermilk, cottage cheese, cream cheese, clotted cream, malted milk.

Cereals: All cereals, especially rice, granola, zo, vita-bits and other dextrinized cereals, breads, zwieback, mushes, etc.

Vegetables: All vegetables. Potatoes, sweet potatoes, greens.

Miscellaneous: Malt sugar (maltose), lactose, lacto-dextrin.

Accessories: Laxa, agar, paraffin preparations (paralax, parameles, petrolatum).

COLITIS

Nature of the Disease

Colitis is an infection of the colon. It has not been demonstrated that colitis is due to a specific organism, although Dr. Tissier of the Pasteur Institute believes that the *B. paracoli* (paratyphoid) is the organism chiefly responsible for the disease. Dr. Almroth Wright of London believes that not only this organism but several others which are commonly found in the colon may cause the disease.

An Efficient Method of Combating Colitis

There is only one way in which to cure colitis, and that is to change the flora of the colon, in other words to eliminate the pernicious pathogenic bacteria and restore the normal aciduric flora. This cannot be done by means of antiseptics or germicides, for the reason that a sufficient number of the infecting organisms always survive to perpetuate the disease, and so it quickly returns. This will always happen unless the normal protective flora is restored at the same time that the pernicious flora is destroyed. This cannot be done by germicides for the reason that they destroy the normal aciduric bacteria as well as the pathogenic organisms. It is evident then that it is only by means of biologic methods that the infection can be conquered. That is, the intestinal flora must be changed, not destroyed. The colon is a most excellent culture chamber. Some sort of bacteria will always be present. Beneficent Nature has provided a group of lactic-acid forming organisms, *B. acidophilus*, *B. bifidus* and others, which take possession of the field within a few days after birth. So long as this aciduric flora remains dominant, the stools have little odor because putrefactive changes in the intestine are absent and pathogenic organs cannot flourish because they will not grow in an acid medium.

The chief problem in the treatment of colitis is to change the

intestinal flora. To accomplish this, several things must be done.

1. The colon must be kept clean. Cleanliness is just as necessary for healing a sore mucous membrane as a denuded skin. It is absolutely impossible to cure colitis without keeping the colon free from putrefying residues, which always harbor the germs which produce and perpetuate the disease.

The fact that the bowels move several times a day is no evidence that the bowel is free from residues, mucus, and detritus. The frequent movements usually indicate that the colon, at least the proximal colon is never completely emptied. The cecum and ascending colon are always dilated. The cecum is often sacculated, and stasis is very marked. The x-ray often shows retention of stagnant fecal matters in the cecum notwithstanding the fact that the bowels move ten or twelve times a day. The ileocecal valve is incompetent and so the putrid and highly toxic matters in the cecum are forced back into the small intestine and, being absorbed, give rise to headaches, depression and nerve disturbances of various sorts characteristic of this disease. The whole colon must be cleared out and kept clean.

This must be done by physiologic or biologic measures. It cannot be efficiently done by drugs.

Laxative drugs, salts, mineral waters and all sorts of aperients only aggravate the disease by irritating the mucous membrane and thus making it more vulnerable to the attacks of bacteria and greatly lessening the filtering properties so that poisons are more freely absorbed. "Soothing" remedies applied locally, have no curative value because they do not destroy the pernicious bacteria which produce the irritation. The various antiseptic drugs which have been recommended, either when applied locally or administered internally, are worse than useless because while they do not eradicate the germs which cause the colitis, they do hinder the growth of the protective or acid-forming bacteria which are endowed by Nature with the ability to drive out and keep out of the colon the pernicious bacteria which cause colitis, appendicitis and numerous other bowel disorders, provided conditions are made favorable.

Daily, and if necessary twice a day, the colon must be washed out with a hot, normal salt solution—two quarts of water at a temperature of 115°-120° F., with a level tablespoonful of salt. Follow the enema with a pint of warm starch water. The

best time for the enema is just before retiring. Repeat if necessary to empty the colon completely. Ten grains of carmine at breakfast will color the residues and indicate when the colon is empty. No carmine should appear in the stool the next day.

Bran and Other Coarse Foods Not Harmful

Except in cases of acute colitis and enteritis, coarse food-stuffs are not harmful. They are never harmful when stasis exists. A carmine test will show if motility is increased. If it is, of course bran and other roughage is not needed. If not, roughage is needed and can do no harm.

The descending colon is usually spastic. It is often very tender to the touch and the seat of continuous and very distressing pain, which frequently extends into the back. This contraction is due to the irritation produced by the bacterial infection of the mucous membrane. It will continue until the infection has been gotten rid of by changing the flora. It is to be noted that this irritation is not mechanical in character, but is produced by the poisonous products to which the putrefactive bacteria give rise. In other words it is a chemical and not a mechanical irritation.

Why a Bland Diet is Harmful

The bland diet which formerly was invariably used in cases of colitis and is still urged by some who have not made themselves familiar with the modern views of the nature of the disease, can never cure colitis, for the reason that it tends to increase the delay in the right half of the colon. The bland diet, in other words, does not relieve the chronic constipation which is, in the great majority of cases, the original cause of the infection. Coarse foods are needed to stimulate the upper colon to action. Such foods do not increase the colitis but aid in accomplishing a cure by helping to keep the colon clean.

It is true that when bran and coarse vegetables are used, the patient may at first experience some slight pain, but the pain is not due to irritation of the diseased surfaces, but to the increased peristaltic activity. A dose of mineral water, a Seidlitz powder or a mild medicinal laxative of any sort will likewise produce pain. Anything which causes a sore or spastic bowel to act will necessarily occasion more or less pain. The pain is due to contraction; but this is necessary to enable the bowel to empty itself.

The very hot enema (115°-120° F.) serves several useful purposes. It not only relaxes the spastic colon, but relieves soreness and pain, cleanses the infected surfaces and creates healthy activity in the diseased tissues, greatly promoting the healing process. The warm starch water left in the colon to be retained after the colon has been well cleansed protects sensitive surfaces and promotes the development of the protective flora.

Bowel movement, though painful, does not increase the infection, the real disease, but lessens it, just as coughing in pneumonia is painful but useful and does not increase the inflammation. If, when keeping the colon clear, proper efforts are made to change the intestinal flora by the use of Lacto-Dextrin or some equivalent carbohydrate, the infecting bacteria may be rapidly gotten rid of and gradually the bowel may be restored to a normal condition. The slight pain occasioned by the increased peristalsis may be relieved by the application of a hot water bag, or heat in some form to the abdomen.

Professor Tibbles, the eminent English writer on dietetics, holds that the neglect to use coarse foods is "largely responsible for atonic constipation and many of the cases of chronic intestinal catarrh, mucous colitis and membranous colitis," and the Professor adds, "It is therefore important in the treatment of these diseases that the food does not lack cellulose and especially woody fiber (bran)."

Von Noorden, one of the most eminent of living medical authorities, insists on the use of liberal quantities of the coarsest foods, including all sorts of coarse vegetables, the coarsest sorts of rye bread (pumpernickel), fruits, gooseberries, grapes, currants, including the skins and seeds, and reports a complete cure in half of all cases treated by this diet alone, and improvement or cure in 75 per cent of his cases. Von Noorden's cases did not have the benefit of the special methods for changing the flora which we now possess. His good results were due to the fact that bran and other coarse foods actually accomplish a considerable change of the intestinal flora by helping to keep the colon empty, and so giving less opportunity for the development of pernicious bacteria.

Fig Bran, *Psylla-Alba* (white psyllium seed) and other means employed to combat constipation must be assiduously used. Mineral oil is necessary as a lubricant. The best preparation is

Paramels, which is solid at room temperature but melts at the temperature of the body. It is twice as efficient as plain oil or emulsion and does not leak.

The Diet Must Be Non-Putrefactive

Meats of all sorts, fish, flesh and fowl, must be excluded from the dietary.

Flesh foods are highly objectionable for the reason that there are always left over from their digestion remnants filled with putrefactive germs which flourish in the colon and are an active cause of colitis. The flora may be improved even though small amounts of meat are eaten, but for a thorough change and best results, meats of all sorts should be wholly discarded from the diet.

Eggs are nearly as objectionable as meats. This is especially true of the white of eggs. Eggs are often infected with *B. paracoli* which causes colitis (Tissier). They should be discarded if rapid and complete results are expected.

Milk is sometimes well tolerated but is often harmful. It must be carefully avoided in acute colitis and in cases of chronic colitis with an acute relapse.

The diet should include a considerable amount of roughage, such as the coarsest vegetables, lettuce, spinach, greens, cabbage, etc., as well as fresh fruits and particularly seedy fruits, such as raspberries, currants and huckleberries.

Bran or graham bread or rye bread should be eaten in place of ordinary fine flour bread. Whole grain foods should be used. Half a tumblerful of bran, or half as much agar, or two or three dessert-spoonfuls of psyllium seed (*Psylla*), should be taken at each meal, and should never be omitted, even at a single meal. Paraffin in some form is needed for lubrication. A form of paraffin (*Paramels*), which is solid at ordinary temperature and melts at the temperature of the body, is the best lubricant. Laxa is the best roughage. In very obstinate cases a combination of Laxa, with *Psyllium* seed (*Psylla*) and *Paramels*, may induce good bowel movements when other means fail.

How Lacto-Dextrin Changes the Intestinal Flora

Lacto-Dextrin is a special carbohydrate which is so slowly absorbed that it reaches the colon in sufficient quantity to render efficient service in causing the aciduric flora to flourish and thus prevent the growth of the pathogenic germs which cannot grow in an acid medium. *B. acidophilus* and other acid-forming organisms are always present in the colon, so the taking of sour milk and other cultures is not necessary. *B. acidophilus* develops spontaneously just as do other sour milk germs when right conditions are supplied. The one essential condition is the presence of an abundance of the right sort of carbohydrate (Lacto-Dextrin).

Lacto-Dextrin should be taken three times a day in liberal doses, on rising in the morning, on going to bed at night and sometime during the day. For rapid results, the dose must be large, at least two or three ounces; even more (four ounces) may be required in cases in which the colon is badly crippled. Two glassfuls of water should be taken with each dose. The product dissolves most quickly in hot water. When large doses are taken, there will at first be a considerable increase of intestinal gas. This is a certain indication that the Lacto-Dextrin is reaching the colon. The worse the flora, the greater the amount of gas produced. When the change is completed, the gas will disappear, since the normal acidophile bacteria of the intestine do not produce gas.

It is to be remembered that Lacto-Dextrin is a highly concentrated food and hence when it is taken in large doses, the amount of other food eaten should be proportionately decreased. In general, when the maximum doses are taken the amount of other food eaten should be reduced to about half the usual amount.

As the flora is changed, the stools become more normal in consistency, and their odor becomes much less offensive. When the change is completed, the stools should have very little odor, or only a slight acid odor.

Under this régime, mucus and other symptoms of colitis will rapidly disappear. A severe cold, neglect of the bowels, or carelessness in diet, may at first quickly bring a fleeting return of the old symptoms; but close observance of the rules above given and care to avoid an accumulation of residues in the colon, even for a single day, will, in time, secure permanently beneficial results.



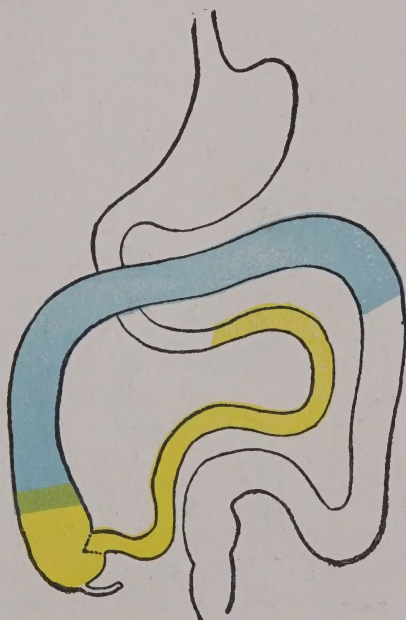
After Breakfast
8 A.M.



After Dinner—1 P.M.
Breakfast residue entering the colon.



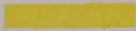
After Supper—6 P.M.
Breakfast and Dinner residues in the colon.
Breakfast residue ready to be discharged.

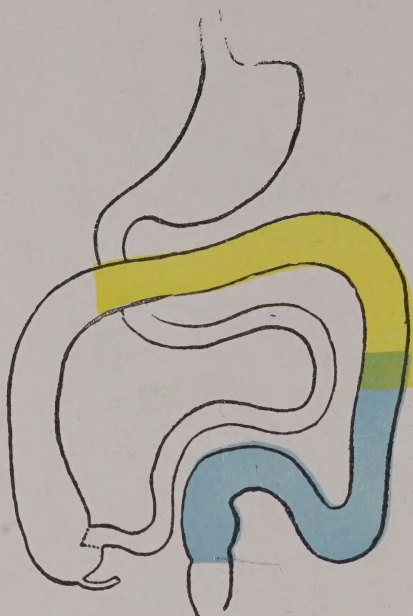


10 P.M.—Breakfast residue discharged before going
to bed. Supper residue beginning to enter the colon.

 BREAKFAST

 DINNER

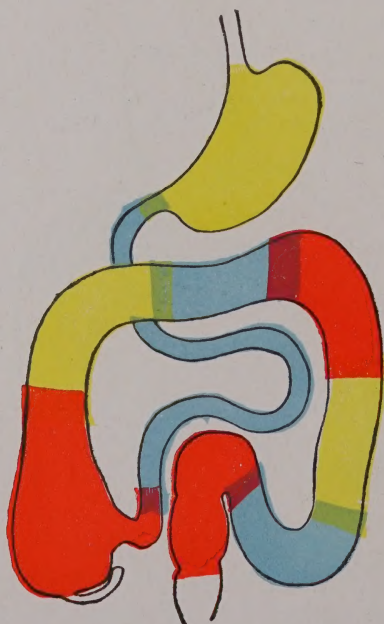
 SUPPER



Before Breakfast—2d Day
Dinner residue of the day before ready to be discharged.



After Breakfast—2d Day
Supper residue of the day before ready to be discharged, thus cleaning the way for the day's meals.



"One-a-Day"
Constipation



Colitis


BREAKFAST


DINNER


SUPPER

When the flora is completely changed and the stools are no longer putrid, and the bowels moving freely three times a day without the aid of the enema, the dose of Lacto-Dextrin may be diminished by one-third or one-half; but its use should be continued indefinitely to insure the maintenance of a good flora and thereby prevent a relapse, to which a strong tendency will always remain, due to the fact that the change of flora is never so complete but that there will always be found present a sufficient number of pernicious bacteria to quickly develop a bad flora and reinfect the intestine if measures to combat constipation and to encourage the development of a good flora are neglected.

A meat diet, and especially the use of raw meats, such as oysters-on-the-half shell, rare steaks or chops, hamburger steak, sausage or cold-storage chicken or game, will quickly cause a return of the pernicious flora.

Foods for Changing the Intestinal Flora

Putrefaction in the intestine is an unnatural and highly injurious condition. The products of putrefaction when absorbed, impose a heavy burden of unnecessary and energy-wasting work upon the liver and other poison-destroying organs, also the kidneys and other poison-eliminating organs. A colon filled with putrefying residues and wastes is a constant menace to the body, and as Metchnikoff clearly proved, is a potent means of inducing premature senility. The horrible smelling poisons, indol, skatol, pyrrtol, and a dozen other poisons known and probably scores unknown, not only taint the breath and discolor the skin, but addle and irritate the brain and nerves, deteriorate the blood, wear out prematurely the liver and kidneys and become a terrible handicap in every form of disease, while setting up degenerative changes which lead directly to premature failure of the heart and other vital organs.

Now that scientific research has placed in our hands efficient methods for changing the intestinal flora so as to suppress putrefactive changes and keep them suppressed, this new therapeutic method has become an important factor which demands consideration in dealing with almost every form of disease, acute or chronic.

In arranging an antitoxic or non-putrefactive dietary, it is first of all necessary to reject foods which naturally undergo

putrefactive changes. Anything that will putrefy outside of the body will putrefy in the colon. Of course, most of the food is digested, but there always remains in the colon a considerable unused residue, the putrefaction of which constitutes the chief objection to flesh foods. About one-seventh of the lean meat eaten undergoes putrefaction in the intestine. Eggs and meat, including fish and fowl, must be discarded. Fortunately these foods may be dispensed with without risk of injury, and the great advantages of the antitoxic diet which will soon appear afford ample compensation for the small self-denial that may be required of the patient at the start.

The following diet list affords ample variety to satisfy even the captious appetite of an invalid if well served:

Antitoxic Diet List

Soups: Vegetable soups and bouillons without cream.

Relishes: Tomatoes, celery, lettuce, endive, cucumber, radishes, shredded raw cabbage, shredded raw carrots and turnips. Ripe olives, bromose, meltose, meltose with butter. Vegetable and fruit salads without eggs, Sal-Savita.

Vegetables: All vegetables, especially fresh vegetables, raw and cooked.

Cereals: Brose (scalded oatmeal), cereal flakes, vita-wheat, shredded wheat, granola, macaroni, corn meal, rice, bran, fig bran.

Breads: Graham bread, zwieback, dry toast, bran gems, gluten bread, basic biscuit.

Beverages: Fruit juices, cereal coffee, malted nuts, malted milk, buttermilk (yogurt, acidophilus).

Fruits: All fresh and cooked fruits. Tomatoes are particularly beneficial.

Desserts: Fruit tapioca, fruit gelatins, fruit ices, fruit purées, fig marmalade, prune marmalade, dates, figs, raisins.

Miscellaneous: Butter, cream, buttermilk, cottage cheese, to fu, nuts, malted nuts, malted milk, protose.

Accessories: Bran, Agar, Laxa, Paralax, Paramels, Lacto-Dextrin, Psylla-Alba.

RATION TABLE FOR DIABETICS *

Carbohydrate Tolerance.....	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	
Protein 80	Fats.....	...	...	...	...	...	60	77	94	110	127	144	160	177	194	210	227	244	260	277	293
	Carbohydrates.....	...	...	...	...	...	8	16	25	33	41	50	58	66	75	83	91	100	108	116	125
	Calories.....	...	...	...	...	...	892	1,077	1,266	1,442	1,627	1,816	1,992	2,177	2,366	2,542	2,727	2,916	3,092	3,277	3,457
Protein 75	Fats.....	...	...	...	...	47	63	80	97	115	130	147	163	180	197	213	229	247	263	280	296
	Carbohydrates.....	...	...	...	...	2	10	19	27	35	43	52	60	68	77	85	93	102	110	118	127
	Calories.....	...	...	...	...	731	907	1,092	1,281	1,457	1,642	1,831	2,007	2,192	2,381	2,557	2,742	2,931	3,107	3,292	3,476
Protein 70	Fats.....	...	...	...	...	49	65	82	99	115	132	149	165	182	199	215	232	249	265	282	298
	Carbohydrates.....	...	...	...	...	7	12	20	29	37	45	54	62	70	79	87	95	104	112	120	129
	Calories.....	...	...	...	...	737	913	1,098	1,287	1,463	1,648	1,837	2,013	2,198	2,387	2,563	2,748	2,937	3,113	3,298	3,488
Protein 65	Fats.....	...	...	...	...	52	68	85	102	118	135	152	168	185	201	217	234	251	268	285	301
	Carbohydrates.....	...	...	...	...	7	12	19	27	35	43	52	60	68	77	85	93	102	110	118	127
	Calories.....	...	...	...	...	756	932	1,117	1,306	1,482	1,667	1,852	2,028	2,213	2,393	2,569	2,754	2,934	3,132	3,317	3,497
Protein 60	Fats.....	...	...	...	...	37	54	70	87	104	120	136	154	170	187	203	219	236	253	270	287
	Carbohydrates.....	...	...	...	...	1	10	18	26	35	43	51	60	68	76	85	93	101	109	118	126
	Calories.....	...	...	...	...	577	758	938	1,133	1,312	1,488	1,668	1,866	2,042	2,227	2,407	2,583	2,768	2,963	3,142	3,327
Protein 55	Fats.....	...	...	...	...	39	56	73	90	106	123	139	156	172	189	205	221	238	255	272	289
	Carbohydrates.....	...	...	...	...	4	12	21	29	37	45	53	62	70	79	88	96	104	112	121	129
	Calories.....	...	...	...	...	587	772	961	1,146	1,322	1,507	1,683	1,872	2,048	2,237	2,417	2,593	2,778	2,963	3,152	3,347
Protein 50	Fats.....	...	...	...	...	42	59	76	92	108	124	141	158	175	192	208	224	241	258	275	292
	Carbohydrates.....	...	...	...	...	1	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122
	Calories.....	...	...	...	...	606	791	976	1,162	1,332	1,508	1,689	1,878	2,067	2,252	2,432	2,608	2,797	2,985	3,173	3,361
Protein 45	Fats.....	...	...	...	...	28	44	61	78	94	111	127	144	160	177	193	210	226	243	260	276
	Carbohydrates.....	...	...	...	...	4	12	20	28	36	44	52	60	68	76	84	92	101	110	118	126
	Calories.....	...	...	...	...	436	616	801	986	1,162	1,347	1,523	1,708	1,884	2,073	2,253	2,442	2,618	2,807	2,987	3,167
Protein 40	Fats.....	...	...	...	...	50	67	83	81	97	113	130	146	163	180	196	213	229	246	262	279
	Carbohydrates.....	...	...	...	...	12	26	41	28	45	61	78	94	110	127	143	160	176	192	209	225
	Calories.....	...	...	...	...	446	631	811	1,001	1,177	1,357	1,542	1,718	1,903	2,092	2,268	2,461	2,637	2,827	3,017	3,207
Protein 35	Fats.....	...	...	...	...	33	49	66	83	99	116	133	149	166	183	199	215	231	248	264	281
	Carbohydrates.....	...	...	...	...	15	29	43	58	73	89	104	120	136	152	168	184	200	216	232	248
	Calories.....	...	...	...	...	465	641	826	1,011	1,181	1,357	1,537	1,733	1,922	2,111	2,287	2,471	2,655	2,839	3,023	3,207
Protein 30	Fats.....	...	...	...	...	18	35	52	69	85	101	118	135	152	168	185	202	219	235	252	269
	Carbohydrates.....	...	...	...	...	7	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127
	Calories.....	...	...	...	...	286	471	660	845	1,021	1,191	1,386	1,571	1,756	1,932	2,121	2,306	2,491	2,676	2,861	3,046
Protein 25	Fats.....	...	...	...	...	20	37	54	71	87	103	120	137	154	171	187	204	221	238	255	272
	Carbohydrates.....	...	...	...	...	4	12	19	27	35	43	51	59	67	75	83	91	99	107	115	123
	Calories.....	...	...	...	...	296	481	670	855	1,031	1,207	1,392	1,577	1,766	1,951	2,137	2,322	2,507	2,692	2,877	3,062
Protein 20	Fats.....	...	...	...	...	23	40	57	73	90	106	122	140	156	172	188	204	220	236	252	268
	Carbohydrates.....	...	...	...	...	6	14	22	31	39	47	54	64	73	81	89	97	105	113	121	129
	Calories.....	...	...	...	...	311	496	685	861	1,046	1,222	1,411	1,593	1,776	1,970	2,163	2,356	2,549	2,742	2,935	3,128
Protein 15	Fats.....	...	...	...	...	8	25	42	59	76	92	108	125	142	159	175	192	209	226	243	260
	Carbohydrates.....	...	...	...	...	8	16	23	31	39	47	55	63	71	79	87	95	103	111	119	127
	Calories.....	...	...	...	...	132	317	502	691	876	1,062	1,248	1,431	1,617	1,802	2,000	2,197	2,394	2,591	2,788	2,985
Protein 10	Fats.....	...	...	...	...	11	28	45	62	79	95	111	128	145	162	179	196	213	230	247	264
	Carbohydrates.....	...	...	...	...	3	11	19	28	36	44	52	60	68	76	84	92	100	108	116	124
	Calories.....	...	...	...	...	151	336	521	710	895	1,071	1,247	1,426	1,621	1,816	2,011	2,206	2,401	2,596	2,791	2,986

Rations for diabetic patients balanced for sugar tolerance and acidosis.

HOW TO USE THE RATION TABLE

First, we must know the patient's height and his normal weight. Let us suppose his height to be 5 feet 8 inches. Reference to the accompanying Table shows the normal weight for a man of that height to be about one hundred and fifty pounds. Reference to Dr. Bois' Table shows the basal ration of such a person to be about 1700 calories. One third of a gram of protein is needed for each pound of body weight, so he needs 50 grams or 200 calories of protein. Referring now to the Ration Table (See other side of sheet), find at the left hand, first column, "Protein 50". Follow the "calories" line toward the right to the figures 1689, nearly 1700, the ration we desire.

The whole ration now consists of protein 50 grams (200 calories), fat 141 grams and carbohydrate 56 grams. As this ration falls in the 100 column, we know that it contains just 100 grams of sugar or an equivalent of carbohydrate. The patient eats this ration, his urine being saved for the entire 24 hours. Analysis of the urine shows the amount of sugar present, which has not been utilized. Now subtracting this from 100 will give us the amount of sugar which the patient is able to metabolize. Let us suppose this to be 60 grams. Now, moving on the same line four columns to the left, we find in the "60" column a ration of 996 calories. This ration the patient should be able to utilize completely and so we use it as the initial feeding ration. If with this ration a little sugar appears in the urine, a few units of insulin may be given, sufficient to cause its disappearance.

Having made the patient's urine sugar free, we now proceed to gradually build up a ration of sufficient calorie value to prevent loss of weight. This is easily done by advancing along the 50 gram protein line toward the right. The first advance will make use of ration 1152; the next 1332; etc. With each advance an increase of about 5 units of insulin will be needed to keep the urine free from sugar or to keep the blood sugar at the proper level (if blood examinations are made which is always desirable). When the basal ration is reached, that is, the original test ration of 1700 calories (1689 on the chart), no further increase of fat is needed. The protein will of course remain the same. So the ration will now be as follows:

Protein	50 grams,	200 calories
Fat	141 "	1269 "
Carbohydrate	56 "	224 "
Total		1693

It is now only necessary to gradually increase the carbohydrate with commensurate increases of insulin until a sustaining ration adapted to the patient's activities is reached. It has been clearly shown by Joslyn and others that a large intake of fat is undesirable and tends to produce arteriosclerosis, which generally appears first in the legs. For each additional unit of insulin, 10 calories (2.5 grams) of carbohydrate may be added. In this way, the carbohydrate of the ration may be increased by several hundred calories until a fairly well balanced and nearly normal ration is reached, such as the following:

Protein	200	calories
Fat	1300	"
Carbohydrate	800	"
Total	2300	

FOODS FOR DIABETICS

The discovery of insulin has greatly broadened the dietary of the diabetic, but there is still a tendency to the excessive use of meats.

(See N. M. in Diabetes p. 60)

Wheat glutens combined with nuts or milk, completely meet all the demands of the body for protein for tissue building and there is no evidence that protein is needed for any other purpose.

The proteins of the soy bean, the peanut as well as nuts and milk are also of high quality. The fact pointed out by Joslyn that nearly all diabetics within a few years develop arteriosclerosis, emphasizes the importances of avoiding flesh foods because of their "acid" character.

FOODS GROUPED ACCORDING TO CARBOHYDRATE CONTENT

(3 Per Cent)

VEGETABLES

	Per cent		Per cent
Chinese Cabbage	1.4	Celery	3.3
Lettuce	2.9	Asparagus	3.3
Endive	3.0	Brussels sprouts.....	3.4
Cucumbers	3.1	Sauer kraut	3.8
Spinach	3.2	String beans.....	3.8
Beet greens	3.2	Tomatoes	3.9

(5 Per Cent)

VEGETABLES

Cabbage sprouts.....	4.3	Cabbage	5.6
Cauliflower	4.7	Leeks	5.8
Chard	5.0	Radishes	5.8
Eggplant	5.1	Collards	6.3
Pumpkin	5.1	Mushrooms	6.8

FRUITS

Ripe olives (fat 21).....	3.5	Avocado (fat 17.3).....	4.4
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NUTS

Butternuts	3.5	Brazil nuts.....	7.0
Pignolias	6.9	Nuttolene	6.1

(10 Per Cent)

VEGETABLES

	Per cent		Per cent
Beets	7.4	Onions	8.9
Okra	7.4	Squash	9.0
Turnips	8.1	Carrots	9.3
Rutabaga	8.5		

FRUITS

Strawberries	7.4	Mango	10.0
Lemons	8.5	Blackberries	10.9
Cantaloup	9.3	Oranges	8.7
Peaches	9.4	Orange juice	10.8
Pineapple	9.7	Grapefruit	10.4
Cranberries	9.9		

NUTS

Paradise nuts	10.2	Black walnuts	11.7
Hickory nuts	11.4		

(15 Per Cent)

VEGETABLES

Parsnips	13.5	Artichokes	16.7
Lima beans (canned)	14.6	Green peas	16.9
Macaroni	15.8		

FRUITS

Raspberries	12.6	Pears	14.1
Currants	12.8	Apples	14.2
Blueberries	12.8	Huckleberries	16.6
Apricots	13.4	Cherries	16.7

NUTS

Filberts	13.0	Pecans	15.3
Walnuts (English)	13.0	Pistachios	16.3
Beechnuts	13.2	Pine nuts	17.3
Peanut butter	14.0	Almonds	17.3

(20 Per Cent)

VEGETABLES

Baked beans	19.6	Potatoes	20.9
Green corn	19.7	Rice (boiled)	24.4

FRUITS

Plums	20.1	Bananas	22.0
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NUTS

Almonds	17.3	Peanut	24.4
Almond butter	18.0	Peanut butter	25.0

LIST OF FOODS SHOWING THE QUANTITIES OF EACH IN WHICH ARE FOUND FIVE GRAMS (20 Calories) OF CARBOHYDRATES

FRUITS

	Ounces		Ounces
Almonds	1	Apricots, canned	$\frac{1}{2}$
Apples, fresh	$1\frac{1}{4}$	Apricots, stewed	$\frac{1}{2}$
Apples, baked	$\frac{2}{3}$	Avocado (Alligator pear)....	4
Apples, juice	$1\frac{1}{4}$	Banana	$\frac{4}{6}$
Apples, sauce	$\frac{2}{3}$	Orange juice—	
Blackberries	$1\frac{2}{3}$	3 tablespoonfuls	
Blackberry juice—		Peach juice.....	1
$1\frac{2}{3}$ tablespoonfuls		Pears	$1\frac{1}{4}$
Blueberry juice—		Pear juice	$\frac{3}{4}$
$1\frac{1}{2}$ tablespoonfuls		Pineapple, fresh	2
Cantaloup	2	Pineapple, juice	1
Cherries	1	Plums, fresh	1
Cherries, canned.....	$\frac{1}{2}$	Prunes, fresh	1
Cucumbers	6	Prunes, stewed	$\frac{2}{3}$
Currants	$1\frac{1}{2}$	Raisins	$\frac{1}{4}$
Dates	$\frac{1}{4}$	Raspberries	$1\frac{1}{4}$
Figs, dried	$\frac{1}{4}$	Raspberry juice, black.....	1
Figs, fresh	1	Raspberry juice, red.....	$\frac{2}{3}$
Grapes	$1\frac{1}{4}$	Raspberries, red, stewed—	
Grapefruit—		$1\frac{1}{2}$ tablespoonfuls	
4 tablespoonfuls		Strawberries, fresh	$2\frac{1}{2}$
Lemon juice—		Strawberries, canned	$\frac{1}{4}$
4 tablespoonfuls		Strawberry juice.....	$\frac{3}{4}$
Apricots, fresh	$1\frac{1}{3}$	Watermelon	$2\frac{1}{2}$

VEGETABLES

Artichokes	$1\frac{1}{4}$	Onions, fresh	$1\frac{2}{3}$
Asparagus	6	Onions, boiled	$2\frac{1}{2}$
Beans, baked	1	Onions, stewed	$2\frac{1}{2}$
Beans, string	$2\frac{1}{2}$	Parsnips, browned.....	$1\frac{1}{2}$
Beets, buttered.....	2	Peas, green.....	1
Beet greens.....	$6\frac{1}{2}$	Potato, baked	$\frac{3}{4}$
Brussels sprouts	6	Potato, boiled	1
Cabbage	3	Radish	3
Carrots	$2\frac{1}{2}$	Spinach, creamed.....	4
Cauliflower, buttered.....	3	Squash, Hubbard	$1\frac{1}{2}$
Celery	6	Squash, summer.....	5
Dandelion greens	2	Tomatoes, fresh	5
Eggplant	1	Tomatoes, stewed	2
Lentils, baked.....	1	Turnips, mashed.....	2
Lima beans, green.....	1	Turnip purée	$2\frac{1}{2}$

CEREALS

Bran biscuit.....	$\frac{1}{2}$	Corn bread.....	$\frac{1}{3}$
Bran mush	3	Oatmeal, boiled.....	$1\frac{1}{2}$
Bran, sterilized	1	Pop corn	$\frac{1}{4}$
Bread, graham	$\frac{1}{3}$	Rice, boiled.....	1
Bread, white	$\frac{1}{3}$	Oats, boiled	2
Bread, whole wheat.....	$\frac{1}{3}$	Shredded wheat.....	$\frac{1}{4}$
Breakfast toast.....	$\frac{1}{4}$	ZO	$\frac{1}{4}$

Table showing the Number of Calories Required according to Height and Weight When the Body is in a State of Complete Rest (Basal Metabolism).

Height In.	55	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220	231
80	.....	.....	.....	.....	.....	.....	1735	1801	1858	1914	1971	2027	2084	2131	2178	2225	2273
78	.....	.....	.....	.....	.....	1631	1697	1763	1820	1877	1933	1990	2046	2093	2141	2188	2235
76	.....	.....	.....	1471	1537	1603	1669	1735	1792	1848	1905	1961	2009	2056	2103	2150	2197
74	.....	.....	.....	1443	1509	1575	1641	1697	1754	1811	1867	1924	1971	2018	2065	2112	2159
72	.....	.....	.....	1405	1481	1547	1613	1669	1726	1782	1839	1886	1933	1980	2027	2075	2122
70	1122	1207	1282	1377	1443	1509	1575	1631	1688	1745	1801	1848	1895	1943	1990	2037	2084
68	1103	1188	1263	1348	1414	1480	1537	1594	1650	1707	1754	1801	1848	1895	1943	1990	.....
66	1075	1160	1235	1320	1386	1452	1509	1565	1622	1679	1726	1773	1820	1867	1914	1952	.....
64	1056	1141	1216	1292	1358	1414	1471	1528	1584	1631	1679	1726	1773	1820	1867	.....	.....
62	1028	1113	1188	1254	1320	1377	1433	1490	1547	1594	1641	1688	1735	1782	.....	.....	.....
60	1000	1084	1160	1226	1282	1339	1396	1452	1509	1556	1603	1650	1697	.....	.....	.....	.....
58	971	1056	1131	1198	1254	1311	1367	1424	1472	1518	1565	1613	.....	.....	.....	.....	.....
56	943	1028	1103	1169	1226	1282	1339	1386	1433	1481	.....	.....	.....	.....	.....	.....	.....
54	915	1000	1075	1132	1188	1245	1301	1348	1395	.....	.....	.....	.....	.....	.....	.....	.....
52	896	981	1047	1103	1160	1216	1273	1320	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	877	952	1018	1075	1132	1188	1235	1282	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	858	924	981	1037	1094	1150	1197	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

For intermediate weights the number of required calories may be calculated by adding 7 calories for each additional pound of body weight, for weights between 55 and 110 lbs.; $5\frac{1}{2}$ calories for each pound between 110 and 154 lbs.; and $4\frac{1}{2}$ calories for each pound above 154 lbs.

Based upon the table of Du Bois and Du Bois.

RELATIVE VITAMIN VALUES OF VARIOUS FOODS*

(Compiled from Sherman's "Chemistry of Food and Nutrition" and other authorities.)

	A	B	C**
Apples, raw	16	6-10	10-20
Bacon	8(?)		
Banana, raw	100	6-10	20-40
Beans, canned, baked	16		
string, raw	100	10	6-13
navy, canned, baked		20-24	
Beef, lean	16	10	
fat	150		
Beets	5		
Butter	500-1400		
Cabbage, fresh, raw	18	9-18	100
slightly cooked	18		30
fully cooked	18		5-10
old	6		
Cauliflower	18		
Carrots, raw	600-2000		
cooked		7-9	
Cantaloup		8	
Celery, stems, bleached	0		
bleached, leaves	65		
green leaves	200		
Cereals, whole, with germ		50-75	
Cheese	600		
Codfish	0		
Codliver oil	5000		
Eggs	550	16	
Egg yolk	1700	50	
Egg white	0		
Flour, white, wheat	0		
Grapes	16-22	7-9	4-5
Lemon Juice	3	10	9-18
Lettuce	65	10-12	
Milk, whole	65	9	3-1.5
dry	500	70	
Oatmeal	0		
Olive oil	13		
Onions		6	
Orange juice or oranges	20	9	9-19
Peaches, raw		6-10	
Peas, green, raw	150-200	60	
Pork, raw	6		
Potatoes, raw			
cooked	8	8	1.5-4.5
sweet, yellow	200		
Prunes		38	
Spinach, fresh	1500	20-24	
Tomatoes, raw or canned	170	8-16	9-19
Turnips	1.5-10	8	
Wheat	0	50-75	0
germ		200-300	
sprouted			rich
Yeast (dry)		800-1200	
extract		8000-12000	

* A blank space indicates "not determined," not "absent."

** Compared with orange juice as 100.

TABLE XX
THE VITAMINS OF FOODS^a
(A—B—C)

[The sign + indicates that the vitamin is present. ++ indicates that the vitamin is present in adequate quantities. +++ indicates that the food is very rich in vitamin. — indicates little or no vitamin present. ? or * indicates doubt or uncertainty.]

Food	Vitamin A	Vitamin B	Vitamin C
Alfalfa	+++	++	*
Almonds	+	+++?	*
Artichoke	—	+	—
Apples, raw	+	+	++
Asparagus	*	+++	*
Bacon	—to+	+	?
Bananas, raw	++	+	++
Barley, whole	+	++	—
Beans, kidney	+	+++	*
Beans, navy	+	+++	*
Beans, soy	+	+++	*
Beans, sprouted, raw	+	+++?	++
Beans, string, fresh, raw	++	++	++
Beans, string, cooked	++	++	—
Beechnut	*	++	*
Beef	—to+	+	—to+
Beef juice	*	+	—to+
Beef fat	+	—	—
Beets (roots)	*	+	*
Beet leaves	++	+	*
Beet stems	*	+	*
Brazil nuts	+?	++	*
Bread, white, water	?	+	—
Bread, white, milk	+	+	?
Bread, whole wheat, water	+	++	?
Bread, whole wheat, milk	++	++	?
Butter	+++	—	—
Buttermilk	+	++	+variable
Cabbage, green, raw	++	++	+++
Cabbage, head, raw	+	++	+++
Cabbage, head, cooked	+	++	+
Cabbage, head, canned	+	++	?
Carrots, fresh, raw	++	++	++
Carrots, cooked	++	+	+
Cauliflower	+	++	+
Celery, bleached stems	—to+	++	*
Chard	++	+	*
Cheese, full milk	++	*	*
Cheese, cottage (skim)	+	*	*
Chestnut	*	+	*

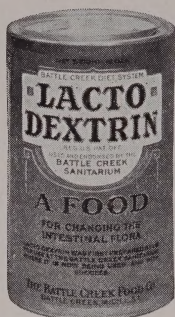
^a—Copied with slight modification from Sherman's "Food Products," Macmillan Company, New York

Food	Vitamin A	Vitamin B	Vitamin C
Cloudberries	*	*	+++
Cloudberries, canned	*	*	+++
Coconut	+	++	*
Coconut oil	—	—	—
Codliver oil	+++	—	—
Corn (maize), white	—to+	++	—
Corn (maize), yellow	+	++	—
Corn oil	?	—	—
Cottonseed (flour or meal)	+	++	*
Cottonseed oil	?	—	—
Cream	+++	++	+ variable
Cress	*	*	+
Cucumber	*	+	++ ?
Dandelion greens	++	++	+
Dasheens	—?	+	+
Eggs	+++	+	+
Egg white	—	*	*
Egg yolk	+++	+	*
Eggplant	*	++	*
Endive	+	*	+
Filberts	*	++	*
Fish, fat	+	+	*
Fish, lean	—to+	+	*
Flour, white	—	+	—
Flour, whole wheat	+	++	—
Glucose	—	—	—
Grains, whole, dry	+	++	—
Grains, sprouted	+	++?	++
Grapes	*	+	+
Grape juice	*	+	+
Grapefruit	*	++	++?
Ham	—to+	+	—
Heart	+	+	+
Hickory nuts	*	++	*
Honey	—	+	—
Ice cream (genuine)	++	++	+
Lard	—to+	—	—
Legumes, sprouted	*	++?	++
Lemon juice	?	++	+++
Lemon juice, dried	?	++	+++
Lentils (dry)	*	++	—
Lettuce	++	++	+++
Limes	*	+	+
Linseed oil	—	—	—
Liver	++var'ble	++	+
Malt, green	+	++?	++
Mango	*	*	+
Margarin, animal fat	—to+	—	—
Margarin, vegetable fat	—	—	—
Meat (muscle)	—to+	+	—to+
Meat, canned	—to+	+	—
Meat extract	—	—?	—
Milk (whole) fresh or scalded	+++	++	+ variable
Milk, condensed	+++	++	+ variable
Milk, evaporated	+++	++	—?
Milk, dried, whole	+++	++	+ variable
Milk, fresh or dried, skim	+	++	+ variable
Millet	+	++	*
Mulberries	*	*	+

Food	Vitamin A	Vitamin B	Vitamin C
Mutton	—to +	+	?
Mutton fat	+	—	—
Oatmeal	—to +	++	—
Oleo oil	+	—	—
Olive oil	—?	—	—
Onions, raw	—to +	++	++
Onions, cooked	—to +	++	+
Orange juice	+to ++	++	+++
Orange peel	+	+	++
Palm oil	+	—	—
Parsley	*	++	*
Parsnips	—?	++	*
Peaches, raw	*	*	++
Peanuts	+	++	*
Peanut butter	+	++	*
Peanut oil	—	—	—
Pears	*	+	*
Peas, young, green	++	++	++?
Peas, dry	+	++	?
Peas, sprouted	+	++?	++
Pecans	*	+	*
Pineapple, canned	++	++	*
Pineapple, fresh, raw	++	++	+++
Pine nuts	+	+	*
Pork	—to +	+	—
Potatoes, sweet	++	+	*
Potatoes, white, raw or cooked	+	++	++
Prunes	+	+	—
Radish	*	+	*
Raisins	?	+	—
Raspberries, fresh or canned	*	*	+++
Rice ("polished"), white	—	—	—
Rice, whole grain	+	++	—
Rutabagas	—?	++	+++?
Rye, whole	+	++	—
Sauerkraut	+	+	—?
Spinach, canned	++	*	*
Spinach, cooked	+++	+++	*
Spinach, dried	+++	++	*
Spinach, raw	+++	+++	+++
Squash, Hubbard	++	*	*
Starch	—	—	—
Sugar	—	—	—
Swede	*	++	+++?
Sweetbreads	+	+	*
Tomato, raw	++	+++	+++
Tomato, cooked	++	+++	+++
Tomato, canned	++	+++	+++
Tomato, dried	++	+++	++
Turnip	—to +	++	*
Veal	*	+	*
Walnuts	*	++	*
Wheat bran	+	++?	—
Wheat embryo	++	+++	—
Wheat flour, white	—	+	—
Wheat middlings	*	++	—
Wheat, whole	+	++	—
Yeast	—	+++	—
Yeast extract	—	+++	—

FOOD VALUES

	Servings Oz.	Carbo- ies		Servings Oz.	Carbo- ies
Almonds	1	183.3	Honey	1	93
Apples	5	90	Lentils	3	137
Apricots	4	65	Lettuce	2	11
Asparagus	3	19	Macaroni	3	101
Beans, baked.....	3	108	Maple syrup.....	1	81
Bananas	3½	100	Malted nuts	1	148
Beefsteak	4	216	Malt sugar	1	86
Beets	3	34	Malt honey	1	86
Beet tops	3	67	Marmalades	1	96
Blackberries	3	49	Milk	6	124
Branola	1	97	Molasses	1	81
Bouillon, beef tea, chicken broth	5	16	Mushrooms	1	13
Bran	1	69	Muskmelons	4	45
Fig			Nuttolene	2	175
Biscuit	1	125	Onions	3	34
Brazil nuts.....	1	197	Oatmeal mush.....	5	70
Bread, bran	1	100	Orange	5	75
Graham	1	68	Parsnips	3	55
Whole wheat.....	1	69	Peaches	4	46
Breakfast toast.....	1	125	Pears	5	90
Bromose, nut.....	1	133	Peas	3	49
Fig	1	137	Peanut butter	1	169
Brussels sprouts.....	3	18	Pecans	1	208
Butter	½	108	Pineapple	4	49
Butternuts	1	191	Plums	4	95
Cabbage	4	84	Potatoes	3	88
Cantaloup	6½	73	Protose	2	98
Carrots	3	37	Radishes	2	17
Cauliflower	3	22	Raisins	1	98
Celery	3	16	Raspberries	3	54
Cherries	3	66	Rice	3	93
Chestnuts	3	195	Rutabagas	3	34
Chicken, broiled.....	5	260	Roast beef.....	3	300
Corn, green.....	3	85	Sauerkraut	3	22
Corn flakes.....	1	104	Shredded wheat.....	1	104
Cream	2	110	Spinach	3	67
Cucumbers	3	15	Squash	3	39
Dates, dried.....	1	89	Strawberries	3	33
Dandelion greens.....	4	69	String beans.....	4	20
Eggs	2	91	Soy biscuit		
Endive	3	14	Toasted rice flakes.....	1	107
Figs, dried	2	180	To fu	2	43
Filberts	1	199	Tomatoes, fresh.....	4	26
Granola	2	204	Tomatoes, stewed.....	3	19
Grapes	4	110	Turnips	3	48
Grapefruit	4	59	Turnip tops.....	3	48
Granose biscuit.....	1	98	Wheat flakes.....	1	104
Hazelnuts	1	95	Walnuts	1	199
Health chocolates	1	90	Watermelon	6	51
Hickory nuts.....	2	202	ZO	2	198
Hominy	3	70	Zwieback	1	106



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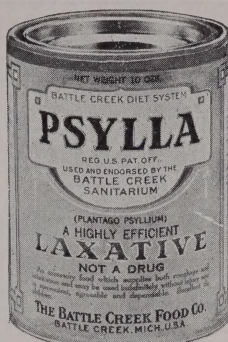
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